FOR MYSORE STATE

Agriculture (1954) Department.

Misc. SERIES.

Passed

G.O. No. 2443

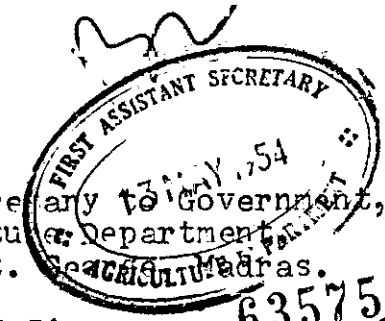
Dated 23.7.54

20

[Despatch Abstract.]

Agri J.C.A.R. - Scheme for the investigation on nutritive quality of staple food stuffs including fruits and vegetables Proposals - Forwarded

AGRICULTURAL DEPARTMENT



63575 (B)
12/5

From
Sri M.S. Sivaraman, I.C.S.,
Director of Agriculture,
Chepauk, Madras.

To
The Secretary to Government,
Agriculture Department,
Fort. St. George, Madras.

No.D.1. 804/54 dated 11.5.54

Sir,

Sub: Indian Council of Agricultural Research Scheme for the investigation on the Nutritive quality of staple food stuffs including fruits and vegetables - proposals - Reconsideration of

Ref: G.O.Ms. No. 1255 Food and Agriculture dated 7.8.53. P294(C)

In the G.O. cited, the Government directed that the scheme mentioned above should be deferred 'for the present'.

2. I now request that the scheme for the investigation on the Nutritive quality of staple food stuffs including fruits and vegetables, which was deferred by Government in their order cited may please be reconsidered by Government this year, for forwarding to the Indian Council of Agricultural Research.

S d. K.C. Naik,
for DIRECTOR OF AGRICULTURE

--By Order--

GAZETTED ASSISTANT

TR.12.5

Agri (B II) Dept.

Memo no. 63575 B II/54-1 dated 28-5-54

Subj: Agri - I.C.A.R. - Scheme for investigation on Nutritive quality of staple food stuffs including fruits and vegetables - Proposals.

Ref: G.O. Ms. 1255 Food and Agri dated 7-8-53.
From Rc. D.A. No. D.1.804/54 dated 11-5-54

With reference to his proposals contained in his letter cited the D.A. is requested to report very urgently whether he considers the Scheme of an urgent and essential nature and whether he proposes any modification in staff and if so to submit a revised statement of expenditure. The attention of the D.A. is in this connection invited to Govt. Memo no. 25968 K/53-2

vide Memo (1)

" viz X on page 3 (2)

Food and Agri dated 4-6-53. He is also requested to state whether the entire cost of the scheme should be met by the I.C.A.R. or only the usual half-grant may be requested from the Council

26/5

To the D.A., Madras

O.N:- The draft above is w.r.t. the letter from the D.A. in the e.f. and is subject to orders. The scheme was previously dropped as it was neither urgent or essential. The D.A. has not stated anything about it now.

26/5

AGRICULTURE DEPARTMENT

From
Sri M.S.Sivaraman, I.C.S,
Director of Agriculture,
Chepauk, Madras.5.

To
The Secretary to Government,
Agriculture Department,
Fort Saint George, Madras.9

No.D.1.804/54 dated 4-6-1954.

...

Sub:- Indian Council of Agricultural Research--Scheme for investigation on Nutritive quality of staple food stuffs including fruits and vegetables--proposals.

Ref:- Government memo No.63575 BII/54-1 Agriculture Department dated 28-5-54.

I invite the attention of Government to my letter No. D.1.1479/52 dated 14-7-53, submitted to Government in reply to their memo No.25968 K/53-2 Food and Agriculture dated 4-6-53 wherein I have stated that the scheme, though not urgent or essential deserved to be considered as early as possible. I have also stated, therein, that the entire cost of the scheme was to be borne by the Indian Council of Agricultural Research.

2. I submit that no modifications or reduction in staff are possible, as the scheme was framed in consultation with the Director, Nutrition Research Laboratory (Indian Council of Medical Research), Coonoor.

Sd.T.Natarajan,
For Director of Agriculture.

(By order)

Gazetted Assistant.

SRD.4.6.

Agri (B II) Dept

Memo No. 63575 B II/54-2 dated 11-6-54

Sub: Agri - I.C.A.R. - Scheme for the investigation on Nutritive quality of staple food stuffs including fruits and vegetables Proposals

Ref: From the D.A. no. D1.806/Gdl. 11-5-54 and 4.6.54.

The D.A. is requested to submit above proposals on the subject mentioned above in the proforma prescribed by the I.C.A.R. for being forwarded to the Council

To the D.A. Madras.

By Spl. Messenger

Agri (B II) Dept.

D.O. no. 65575 B II/54-3 dated 24/5/54

C

Subj: Agri - I.C.P.R. - Schemes for the investigation on Nutritive quality of staple food stuffs including fruits and vegetables Proposals.

Ref: Govt. Memo of even number dt. 11-6-54

I am to request that the proposals called for in the reference mentioned above may kindly

P T O

be sent immediately in duplicate.

23/6 23.6.52

yrs,

24/6

Dr. K.C. Naick, Msc, Ph.D

Hqrs Dy D.A./Research

Office of the D.A. Madras

Immediate

AGRICULTURAL DEPARTMENT

From
Sri M.S.Sivaraman, I.C.S.,
Director of Agriculture,
Chepauk, Madras-5.

To
The Secretary to Government,
Agriculture Department,
Fort St. George, Madras-9.

Letter No. D.1.804/54 dated 24-6-1954.

Sir,

Sub:- Indian Council of Agricultural Research - Scheme for the investigation on Nutritive quality of staple food stuff - including fruits and vegetables Proposals - p7 above

Ref:- Government Memo No.63575-B.II/54-2 dated 11-6-1954.

I submit herewith in duplicate, the proposals on the subject referred to in the Government Memorandum cited, in the proforma prescribed by the Indian Council of Agricultural Research.

p12 below.

2) In this connection, I also enclose a copy of letter No. 375/52/126 dated 15th April 1953 from Dr.V.N.Patwardhan, Director, Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor. It is presumed that Dr. Patwardhan is still holding the views expressed therein. If necessary, he will be contacted on the receipt of instructions from the Government.

(Sd.) K.C. Naik,
for Director of Agriculture.

Spare copy one.

/ by order /

GAZETTED ASSISTANT. 25-6-54

SJF/25-6.

86902 B II 26/6

FIRST ASSISTANT SECTION
26 JUN 1954
AGRICULTURE DEPARTMENT

Office of the Director of Agriculture,
Chepauk, Madras-5.

Copy of the letter No. 375/52-126 dated 15th April 1953 of the Director, Nutrition Research Laboratories, Indian Couhcil of Medical Research, to the Director of Agriculture, Government of Madras, Chepauk, Madras.

Sub:- Indian Council of Agricultural Research - Scheme for investigation onthe nutritive quality of staple food-stuffs including fruits and vegetables.

Reference your letter No. Roc. D.i. 1479/53 dated 13th March 1953.

I agree with some very few minor modifications to the scheme which has been resubmitted by the Government Agricultural Chemist.

With regard to your enquiry regarding the specific provision which should be incorporated in the scheme, I have to state that I envisage the Joint control of the scheme to be vested in the Director, Nutrition Research Laboratories and the Government Agricultural Chemist, Madras. The operation of the joint control would be as follows:-

1) Once the scheme has been sanctioned, the detailed programme of work, within the limitations of the scheme, will be drawn up jointly by the two parties concerned.

2) Periodical reviews of programmes made should be undertaken at joint meetings of the Government Agricultural Chemist and the Director, Nutrition Research Laboratories, and the modifications in Programme in broad outline should be agreed upon by both.

3) Progress reports of the work done to be submitted to Indian Council of Agricultural Research should be under the signatures of both the controlling authorities.

4) The selection of scientific personnel required for the scheme should be done in joint consultation by the two controlling authorities.

It is not necessary to incorporate these items in the scheme itself. The only relevant matter with regard to this joint control which is to be incorporated in the scheme itself is in paragraph V - "Staff and Direction" - on page 6 of the revised scheme where the following modification of the paragraph is suggested:

"The scheme will be under the joint control of the Government Agricultural Chemist and the Director, Nutrition Research Laboratories, India Council of ~~Agricultural~~ Medical Research, Coonoor. Work will be carried out at (i) Government Agricultural Chemist's Laboratories, Coimbatore, and (ii) Nutrition Research Laboratories, Coonoor. The Government Agricultural Chemist will be assisted by an Assistant Agricultural Chemist with headquarters at Coimbatore. He will have the following minimum staff for carrying out the various items of investigations invisaged in this scheme:

Two Assistants,
One Laboratory Attender, and
Two Peons.

The staff required to assist the Director, Nutrition Research Laboratories, Coonoor, in these investigations will consist of:

Two Assistants, and
One Laboratory Attander.

I hope you will agree with the methods of joint control, as suggested in this letter, and would be grateful for an early confirmation.

/ true copy /

SJF/25-6.

GAZETTED ASSISTANT.

Office of the Director of Agriculture,
Chepauk, Madras-5.

1. Name of Scheme with Location:

Scheme of investigation on the Nutritive quality of staple food stuffs including fruits and vegetables. Coimbatore and Coonoor.

2. Objective:

The object of the investigation is to determine the nutritive value of protein and vitamins of fruits and vegetables, as affected by (1) genetical characters; (2) type of soil; (3) manuring; (4) irrigation; (5) processing; and (6) storage, etc.

3. Work done already on the subject in India and abroad and the Lacuna Necessitating the investigations:

It is well known that though each variety of foodstuff has its own specific composition, the same varies within a particular range, with (1) different strains; (2) factors which govern the plant growth; and (3) conditions of storage and processing.

As a result of agronomic development, improved strains of crops are being evolved extensively throughout the world replacing the local ones, since these improved strains have desirable economic characters such as the yield, quality of produce, resistance against disease. The consumers are naturally interested in knowing the nutritive value of these improved strains. Unfortunately very little information is available on this aspect in this country.

(1) Strains: In our State at present we have seven strains of cholam (Sorghum), three strains of cumbu (Penisetum), two strains Ragi (Eleusine) and fifteen strains of paddy (Oryzae) that are popular and cultivated on a large scale.

Sadasivam and Srinivasan (1938) have shown that coloured and coarse grained rice are generally richer in protein and minerals. According to Ramiah (1936), Ramiah and Mudaliar (1939) the above mentioned types of rice have a thicker bran layer. It was further observed by them that the maximum development of aleurone was in the glutinous rice while it was the poorest in the wild varieties. Very little information is available on millets except the analysis of a few strains in these laboratories. Srinivasan has reported the composition of some samples of improved strains of rice but not comprehensive enough to cover completely the nutritive value of rice. In other words these different grains were not analysed for either extractives, crude fibre, soluble sugars, biological value of proteins and vitamin content. Maccarrison (1928) reported that rice grown under swampy condition contains greater percentage of protein and mineral matter than that grown under rainfed condition and that the aluerone layer developed better. The same varieties were not grown under these two sets of conditions and hence cannot be accepted as being influenced by soil moisture.

It is evident that there is much scope for further systematic work on this subject.

(2) Agronomic factors which govern plant growth: It has been observed by Ramiah and Mudaliar (1939) that like barley and wheat the protein and mineral content of rice can be increased by proper manuring. They observed that the application of green leaf contributed to the greatest development of aleurone while it was the poorest in the unmanured crop. Variations in the vitamin B content of wheat were attributed to locality and climatic conditions under which crops were grown. MacCarisson (1924) found that the grain obtained from cattle manure treatment had antipolyneuritic factor. According to Viswanath and Suryanarana (1937) Ragi and Cholam grown (permanent manurial experiments, (Coimbatore in manured plots had better nutritive value than those grown in unmanured plot. Among the manures, cattle manure was found to be superior to complete mineral manure.

p.t.o.

A large number of investigations have shown that there is an appreciable variation in vitamin B.1. content due to environmental influences during the growth of the crop, differences in strains or both (kik, Vanlandingh, 1943). Downe and Cathcart (1941) conner and Straub (1941) felt that there was correlation between Vitamin B1 and protein content of Wheat, while Nordgreen and Andres (1941) and Johnson and Rich (1942) found no such correlation. Whiteside and Jackson (1943) and Roffer, et al. (1944) stated the existence of such correlation. Harris (1934), Leon (1939), Pasmore and Sundarajan (1941) could find no evidence of higher nutritive value due to manurial treatments on wheat, barley or rye. Coldberg and Thorp (1942) found no significant effect on vitamin B content due to manuring. Williams (1943) et al. on the other hand did not find significant differences. Johnson and Rich (1942) and Roffer Alcock, Ceddas (1944) found no relationship between vitamin B content and the type of soil on which the crop was grown.

However, treatment with potash or nitrogen or a combination of all the five treatments viz. farmyard manure, phosphate, potash, nitrogen and water increased the vitamin B content of wheat. Recently Sethe, et al. (1952) have shown that the nature of fertilisers added to the soil has got some influence on the thiamin content of rice. Thus there is considerable scope for investigation on this point. We have good materials available in our State to determine the effect of each of the following factors affecting the plant growth and the nutritive value of the produce.

The factors are:-

(1) Colour and texture of soil;
(2) Effect of manuring with organic manures and inorganic fertilisers;
(3) Effect of irrigation - irrigated vs. rainfed

The various improved strains now on hand in this State will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content.

c) Processing: It is well known that the unpolished husked paddy is the richest in its nutritive value both on account of the preservation of the aleurone layer, bran and germ undisturbed. It is only these parts of rice which are most nutritive. During polishing as a result of removal of a part of rice grain mentioned above, the original nutritive quality of rice deteriorates resulting in a poorer stuff as mentioned by Aykroyd.

Vitamin B1 content of rice polished to different degrees.

Number of polishings.	Micrograms per gm.
Shelled only - Nil	4.0
Once	1.8
Twice	1.0
Thrice (ready for market)	0.7

(Milling removed more than 75% of vitamins originally present in the shelled rice) (Aykroyd 1940)

The consumers prefer only polished rice to unpolished as they want the white cooked rice for table purpose.

p.t.o.

The white colour of the cooked rice depends not only on the degree of polishing but also on the variety grown, the shape and size of the grain etc. It is therefore necessary to determine the optimum degree of polishing necessary to effect least changes in the nutritive value of rice consisting with the desire of the consumers to have white cooked rice. This involves controlled polishing of the most important strains of rice that are commonly used in this State to preserve their nutritive value and at the same time prepare them for table purposes to suit the demands of the rice consumers. For this purpose a laboratory polishing mill has to be used for obtaining a sufficient quantity of the sample to conduct this investigation. The material, both the polished rice and the bran will be analysed for those items mentioned above namely nutritive value, biological value of proteins and vitamin assay.

Very little information is available on the polishing of millets which are also one of the important staple foods of the people of this State.

d) Storage: Storage of foodstuffs other than fruits and vegetable is a necessity, because all these crops are season bound and when they are produced in plenty they have to be stored during the off season for day to day use, Moreover, the cooking quality of fresh produce, especially raw rice, is popularly known to be inferior to the oldstuff and a second degree of ripening is felt to be necessary by consumers before the material is actually consumed. This ripening process takes place to different degree depending upon the method of storage adopted. The conditions of aeration, temperature, Humidity, etc. play an important role. The volume expansion during cooking is also influenced by the ripening process. Unfortunately no data are available on this aspect of the subject and a thorough and systematic investigation on the different kinds of foodstuffs is therefore necessary.

4) TECHNIQUE (IN BRIEF):

Sample from the various experiments, soil types, strains etc. will be analysed for nutritive value, biological quality of proteins and vitamin content. Samples will be gathered from crops as per statement below for the work.

A. Strain.

Name of crop	Name of strain Rainfed	Irrigated	Remarks.
Cholam	1.Co.1		Periamanjal (yellow, brown colour)
	2.Co.2		Thalai Virichan (Chalky)
	3.Co3		-do- (Pearly grain)
	4.Co.4		Sen Cholam (Red)
		Co.7	
		Co.9	
		Co.12	Co.4 and Co.7 can be raised under both rainfed and irrigated conditions. Co.7 however prefers irrigated condition.
Cumbu	Co.1	Co.1	(Rainfed and irrigated)
	Co.2		
		Co.3	Sometimes grown under rainfed condition in North Arcot District.
Ragi	Co.1	Co.1	(Rainfed and irrigated)
		Co.2	

p.t.o.

Paddy	MTU. 1	Akkullu (Coarse)
	MTU.19	Sannakusuma (fine)
	BAM-[illegible]. 5	Biagunda (Medium)
	GEB.24	Kichili Samba (fine)
	MTU.15	Dalwa Sannam (Coarse) (Short duration)
	BCP. 1	Molakolukulu (Nellore Samba - long duration fine)
	Co. 2	Karthigai Samba (Long duration - medium size)
	Co. 13	Short duration (Coarse)
	Co. 19	Chingleput Sirumani (medium)
	Co. 25	Sirumani (blast resistant long duration medium)
	ADT. 3	Kuruvai (coarse)
	ADT. 2	Fine round
	PTB. 2	Red rice (Coarse)
	ASD. 1	Red rice (Coarse)
	SR.26B	Saline resistant - duration - medium grain long

(White 13 varieties consisting of coarse, medium, and fine, four each and one long red rice).

Fruits: The following kinds of fruits will be studied.

1. Mangoes: Six important commercial varieties.
2. Bananas: Nendran, Rasthalli and Poovan.
3. Oranges; Sathugudi, and Mandarin orange
4. Papaya
5. Custard apple

These fruits obtained from distinct soil-climatic zones will be analysed for food values, biological values and vitamin content. The changes in food value during ripening process will also be investigated.

Vegetables: Bhendi, Brinjals, Dolichos, Ribbed Gourd, Bottle gourd, pumpkin, Amaranthus and Hibiscus among greens

Details of the strains to be investigated will be furnished when the scheme actually commences.

B. Soil type.

Name of crop	Name of strain	Type of soil		Remarks
Cholam	Co.4 and Co.7	Red	Black	Red soils - Anakapalle Palur and Ambasamudram
Cumbu	Co.1	"	"	Black soils - Samalkot, Maruteru, Siruguppa are the venue for paddy growing; for millets Anakapalle Koilpatti and Palur for red soils Siruguppa, Guntur and Koilpatti for black soil.
Ragi	Co.1	"	"	
Paddy	GEB.24 Co. 13	"	"	

Texture.

	Clayey	Loamy	Sandy
MILLETS	Siruguppa Koilpatti Guntur	Gudiyattam Palur Vizianagaram	Tirurkuppam Tindivanam
PADDY	Maruteru Adduthurai Samalkot Siruguppa	Gudiyattam Palur Ambasamudram	Tirurkuppam Tindivanam

C (Manures (Organic Vs. Inorganic)

Millets — O.P.M)
N.P.M)
No manure, N . P . K and cattle manure.

N.B. The O.P.M. has been receiving these different manurial treatments viz., N, N ÷ K, N ÷ P, N ÷ K ÷ P, K ÷ P, cattle manure, no manure, cattle manure residual for the past 43 years and at present millet and other crops are grown under rainfed condition, whereas in the N.P.M. the crops are grown under irrigated condition for the past 27 years. Grain of cholam, cumbu and ragi grown from

(1) No manure plot
(2) N ÷ P ÷ K plot
(3) Cattle manure plot,

will be analysed for their nutritive value, biological value of proteins and vitamin content. Analysis of paddy grain, GEB.24 strain, obtained from the permanent manurial experiment of the co-ordinated set of manurial experiments conducted at the several Agricultural Research Stations of the State receiving the following treatments will also be done.

Treatments:
1. Ammonium sulphate.
2. Compost.
3. Cattle manure.
4. Green manure.

Each supplying 30 lb. of nitrogen, and 60 lb. of P_2O_5 as superphosphate, 60 K_2O as potassium sulphate and 1500 lb. of lime as slaked lime, per acre.

D. Processing:

Paddy:
1. Shelled and unpolished
2. -do- polished once
3. -do- " twice
4. -do- " thrice
5. Washed before cooking
6. Unwashed before cooking

Two coarse, two fine, two medium and two red rice.

(1) MTU. 1)
Co. 13) for coarse

BAM. 3)
Co. 25) Medium

GEB. 24)
BCP. 1) Fine

PTB. 2)
ASD. 1) Red

E. Storage:

GEB. 24)
Co. 25)
MTU. 1)

p.t.o.

1. Gunnies
2. Straw twist
3. Wicker baskets
4. Silos
5. Underground pits
6. Bins
7. Fresh harvest.

In addition to nutritive value mentioned above the microscopic examination of starch grains, cooking quality etc. will be done.

5. DURATION OF THE SCHEME:

The scheme will run for a period of three years in the first instance and would be extended further based on the findings.

6. PRACTICAL UTILITY OF THE INVESTIGATION.

The practical utility of the investigation lies in improving the nutritive quality of the foods produced to provide the bulk of the population adequate amounts of high quality foods to maintain them in better health and efficiency at a time as at the present when there is an overall shortage of basic foodstuffs resulting in undernourishment.

7. FACILITIES AVAILABLE AND/OR THAT WILL BE MADE AVAILABLE BY STATE GOVERNMENT

(1) Supervision and staff: The scheme will be under the Joint control of the Government Agricultural Chemist and the Director, Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor. Work will be carried out at (i) Government Agricultural Chemist's Laboratories, Coimbatore; and (ii) Nutrition Research Laboratories, Coonoor. The Government Agricultural Chemist will be assisted by an Assistant Agricultural Chemist with headquarters at Coimbatore. He will have the following minimum staff for carrying out the various items of investigations envisaged in this scheme.

Two Assistants.
One Lower Division Clerk.
One Laboratory Attender and
Two Peons.

The staff required to assist the Director, Nutrition Research Laboratories, Coonoor in these investigations will consist of:-

Two Assistants
One Laboratory Attender

(2) Land area:-

(3) Equipment:- The investigations proposed in this programme will be carried out in the Government Agricultural Chemist's laboratories, Coimbatore and the Nutrition Research Laboratories, Coonoor. Work regarding collection of samples, sampling for analysis and chemical analyses including assay of vitamins that can be carried out titrimetrically or fluoroscopically viz. that of vitamin B.1 and C will be done at Coimbatore. All other estimations, involving animal experiments and bacteriological method of assay for which greater facilities exist at Coonoor will be done there (i.e. assay of carotene or vitamin A, Niacin, Riboflavin etc.). It is proposed to place two Assistants and one Attender to carry out the work at Coonoor and one Assistant Agricultural Chemist, two assistants, one attender, one lower division clerk and two peons at Coimbatore. The two laboratories are chosen as requisite facilities are available in the two places for carrying out the analytical as well as bioassay of the experimental materials.

p.t.o.

The produce obtainable from various experiments under progress in various Agricultural Research Stations of the State will be supplied free for the investigation.

8) RECURRING EXPENDITURE:

(A) Pay of Officer with details.	First year Rs.	Second year Rs.	Third year Rs.	Total, Rs.
Assistant Agricultural Chemist on Rs.230-30/2-300-260 - 40/2-700	2,760	2,760	3,120	8,640
(B) Pay of staff with details:				
Four Assistants Viz. Two for Connoor, and Two for Coimbatore on Rs.100-5-140) 220	4,800	5,040	5,280	15,120
One Lower Division Clerk on Rs.45-3-60	540	576	612	1,728
Two Laboratory attenders on Rs.24-1-32	576	600	624	1,800
Two peons on Rs.18-½-25	432	444	456	1,332
Total	9,108	9,420	10,092	28,620
(C) Dearness allowance:				
Assistant Agricultural Chemist at 17½% plus Rs.6/- per mensem	552	552	624	1,728
Four Assistants at 17½% plus Rs.8 p.m.	1,152	1,248	1,296	3,696
One Lower Division clerk at Rs.22/- p.m.	264	264	264	792
Two Laboratory attenders at Rs.19/-	456	456	456	1,368
Two Peons at Rs.18/- per mensem	432	432	432	1,296
Total	2,856	2,952	3,072	8,880
(D) Other allowance:				
House rent allowance at the existing rates:				
Assistant Agricultural Chemist	600	600	600	1,800
FourAssistants at Rs.9/- p.m. in the first year and 12/- p.m. later	432	576	576	1,584
One Lower Division clerk at Rs.7/- p.m.	84	84	84	252
Two Laboratory attenders at Rs.5/- p.m	120	120	120	360
Two Peons at Rs.5/- per mensem	120	120	120	360
Total	1,356	1,500	1,500	4,356
Hill allowance:				
Two assistants at Rs.36/- per mensem	864	864	864	2,592
One attender at Rs.9/- per mensem	108	108	108	324
Total	972	972	972	2,916
(E) Leave Salary	809	836	897	2,542
(F) I.C.A.R. Provident fund contribution	506	524	564	1,594
(G) Travelling allowance:				
For Officer and establishment	500	500	500	1,500
(H) Contingencies				
a) Cultivation expenses:	Nil			

p.t.o.

b) Office and laboratory expenses

i) Office contingencies including service stamps, stationeries and miscellaneous charges	500	500	500	1,500
ii) Chemicals and other materials	500	250	250	1,000
iii) Freight on samples	100	100	100	300
iv) Miscellaneous unforeseen expenditure L.S.	200	150	150	500
Total	1,300	1,000	1,000	3,300

c) Petty construction and repairs to buildings:-

(1) Petty construction of buildings: Nil
(2) Repairs to buildings; Nil

d) Purchase of, repairs to and upkeep of deadstock and livestock:-

1) Purchase of dead stock (tools and implements etc.) - NIL

2) Purchase of live stock: Nil

3) Purchase of furniture: Rs.300/-

4) Repairs to and upkeep of deadstock and furniture/~~future~~ : NIL

5) Upkeep of livestock: NIL

6) Expenditure on running of machinery: Nil

e) Non-recurring expenses:

1) Laboratory equipment, glassware, polishing, mill and other equipment: Rs.20,000/-

9) RECEIPTS ANTICIPATED: NIL

10) Share of the Indian Council of Agricultural Research:-

The scheme as proposed will cost a total sum of Rs.74,008 or 74,000/- spread over a period of three years, and will be financed entirely by the Indian Council of Agricultural Research since the scheme is of All India Importance.

/ true copy /

GAZETTED ASSISTANT.

SJF/25-6.

Dr. K.C. Naik, M.Sc., Ph.D., (Bristol),
Headquarters deputy Director of Agriculture (Research).

Office of the Director of Agriculture,
Chepauk, Madras-5.

D.O. No. D.1.804/54. Dated:- 24-6-1954.

87110 B II

Dear Sri Ramachandran,

Sub:- Indian Council of Agricultural Research - Scheme for the investigation on Nutritive quality of staple food stuffs including fruits and vegetables - Proposals -

FIRST ASSISTANT SECRETARY
27 JUN 1954
AGRICULTURE DEPARTMENT

Ref:- Your D.O. No.63575-B.II/54-3 dated 24th June 1954.

I am to state that the reply is being submitted to Government separately.

2. The Government Memo No.63575.BII/54-2 dated 11th June 1954 was received in this Office only on 19th June 1954 which was a holiday and action could be taken only on 21st June 1954.

Yours sincerely,

25-6-54

To
Sri C. Ramachandran, B.A.,
Assistant Secretary to Government,
Agriculture Department,
Fort St. George,
Madras-9.

Agri (B II) Dept.

3

Letter No. 2443 dated 28/7/54

To

The Secretary, I.C.A.R.,

Tamnagar House Hutments,

Mansingh Road, N. Delhi (W.E.).

Issue of 28/7/54.

f. 1 + pp. 13-29 f
(S.C. 1 copy)

Sir,

Sub: Agri - I.C.A.R. - Scheme for the investigation on nutritive quality of staple food stuffs including fruits and vegetables - Proposals - Forwarded.

I am directed to say that the D.A., Madras has submitted a Scheme for the investigation of nutritive quality of staple food stuffs including fruits and vegetables in this State. The object of the investigation is to determine the nutritive value of protein and vitamin of fruits and vegetables, as affected by (1) genetical characters; (2) type of soil; (3) manuring; (4) irrigation; (5) processing and (6) storage etc. The various improved strains on hand will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content. The scheme is proposed to be worked for a period of three years at the Govt. Agrl.

pp. 13-20 f

C. pp. 15 f

pp. 17 f

Chemist's Laboratories, Coimbatore and at the Nutrition Research Laboratories, Coonoor. The total cost of the scheme for a period of three years is estimated at Rs. 74,000 roundly. This Govt. generally approve of the Scheme. A copy of the Scheme submitted by the D.A. is enclosed.

2. As the Scheme is ~~said to be~~ of a fundamental value having all India importance, I am to request you (to ~~kindly~~) obtain the approval of the Council to this Scheme and also to sanction for a grant of Rs. 74,000/- (Rupees Seventy four Thousand only) to meet the entire expenditure on account of the scheme and communicate it to this Govt. at an early date. ~~I am to add that this Govt. are unable to accept any financial responsibility for the scheme~~

3. The D.A., Madras is being instructed to send direct to the Council the required number of copies of the scheme.

18/7/54

19.7.54

P.T.O.

(11) 35 Agri (B II) Dept

Endt. No. 63575 B II/54-6 dated 23-7-54

Copy communicated to the D. A: He is requested to send immediately the required number of copies of the scheme to the Council direct under intimation to this Govt

18/7.

19.7.54.

Issue

To the D. A, Madras.

18.F. 18.C.

Entered in C. B. 20-1-55 S. No: 588

AGRICULTURE DEPARTMENT.
LETTER MS. No.2443.

From
Sri N. Murugesa Mudaliar, B.A.,
Deputy Secretary to Government.

To
The Secretary,
Indian Council of Agricultural Research,
Jamnagar House Hutments,
Pansingh Road,
NEW DELHI.

FORT SAINT GEORGE, DATED THE 23RD JULY 1954.

Sir,

Sub: Agriculture - Indian Council of Agricultural Research - Scheme for the investigation on nutritive quality of staple food stuffs including fruits and vegetables - Proposals - Forwarded.

I am directed to say that the Director of Agriculture, Madras, has submitted a Scheme for the investigation of the nutritive quality of staple food stuffs including fruits and vegetables in this State. The object of the investigation is to determine the nutritive value of protein and vitamins of fruits and vegetables, as affected by (1) general characters; (2) type of soil; (3) manuring; (4) irrigation; (5) processing; and (6) storage etc. The various improved strains on hand will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content. The scheme is proposed to be worked for a period of three years at the Government Agricultural Chemist's Laboratories, Coimbatore and at the Nutrition Research Laboratories, Coonoor. The total cost of the scheme for a period of three years is estimated at Rs.74,000/- roundly. This Government generally approve of the scheme. A copy of the scheme submitted by the Director of Agriculture is enclosed.

2. As the scheme is of all-India importance, I am to request to obtain the approval of the Council to this scheme and also its sanction for a grant of Rs.74,000/- (Rupees Seventy Four thousand only) to meet the entire expenditure on account of the scheme and communicate it to this Government at an early date.

3. The Director of Agriculture, Madras, is being instructed to send direct to the Council the required number of copies of the scheme.

Yours faithfully,

vnr/26.7. FOR DEPUTY SECRETARY TO GOVERNMENT.

ENDORSEMENT No.63575-BII/54-6 dated 23-7-1954.

Copy communic-ated to the Director of Agriculture. He is requested to send immediately the required number of copies of the scheme to the Council direct under intimation to this Government.

N. Murugesa Mudaliar,
DEPUTY SECRETARY TO GOVERNMENT.

To
The Director of Agriculture, Madras.
Forwarded/By Order

SUPERINTENDENT.

23.7

SPECIAL:-

Agricultural Department.

From
Sri M.S.Sivaraman, I.C.S.,
Director of Agriculture,
Chepauk, Madras-5.

To
The Secretary,
Indian Council of Agricultural
Research, Jamnagar House Hutments,
Mansingh Road, New Delhi.

SECOND ASSISTANT SECRETARY
5 - AUG 1954
AGRICULTURE DEPARTMENT

No. D1. 804/54 dated 29-7-1954.

104944

Sir,

Sub: Indian Council of Agricultural Research - Scheme for the investigation on Nutritive Quality of Staple food stuff including fruits and vegetables- Proposals.

Ref: Madras Government Letter No.Ms.2443 (Agriculture Department) dated 23-7-54 addressed to you.

I enclose two hundred copies of the Scheme for the investigation on Nutritive Quality of staple food stuff including fruits and vegetables, as directed by Government in their letter cited.

Yours faithfully,

Sd. T.NATARAJAN,
For Director of Agriculture.

Copy submitted to the Secretary to Government, Agriculture Department Fort St.George, Madras with a copy of the Scheme with reference to Government Endt.No.63575-BII/54-6 (Agriculture Department) dated 23-7-1954.

/By Order/

Gazetted Assistant.

KPLN.30.7.

Agri (BII) Dept.

Submitted for perusal. This may be lodged and added to the papers at (4).

A.C.B. entry has been added to made against 20/1/55 to watch the receipt of the reply from the Council.

Office of the Director of Agriculture,
Chepauk, Madras-5

1. Name of Scheme with Location:-

Scheme of investigation on the Nutritive quality of staple food stuffs including fruits and vegetables. Coimbatore and Coonoor.

2. Objectives:-

The object of the investigation is to determine the nutritive value of protein and vitamins of fruits and vegetables, as affected by (1) genetical characters; (2) type of soil; (3) manuring; (4) irrigation; (5) propessing; and (6) Storage, etc.

3. Work done already on the subject in India and abroad and the Lacuna Necessitating the investigation:

It is well known that though each variety of foodstuff has its own specific composition, the same varies within a particular range, with (1) different strains; (2) factors which govern the plant growth; and (3) conditions of storage and processing.

As a result of agronomic development, improved strains of crops are being evolved extensively throughout the world replacing the local ones, since these improved strains have desirable economic characters such as the yield, quality of produce, resistance against disease. The consumers are naturally interested in knowing the nutritive value of these improved strains. Unfortunately very little information is available on this aspect in this country.

(1) Strains:- In our State at present we have seven strains of cholam, (Sorghum), three strains of cumbu (Penisetum) two strains of Ragi (Eleusine) and fifteen strains of paddy (Oryzae) that are popular and cultivated on a large scale.

Sadasivan and Srinivasan (1938) have shown that coloured and coarse grained rice are generally richer in protein and minerals. According to Ramiah (1936), Ramiah and Mudaliar(1939) the above mentioned types of rice have a thicker bran layer. It was further observed by them that the maximum development of Aleurone was in the glutinous rice while it was the poorest in the wild varieties.

Contd.2.

Very little information is available on millets except the analysis of a few strains in these laboratories. Srinivasan has reported the composition of some samples of improved strains of rice but not comprehensive enough, to cover completely the nutritive value of rice. In other words these different grains were not analysed for ether extractives, crude fibre, soluble sugars, biological value of proteins and vitamin content. Maccarison (1928) reported that rice grown under swampy condition contains greater percentage of protein and minaral matter than that grown under rainfed condition and that the aluerone layer developed better. The same varieties were not grown under these two sets of conditions and hence cannot be accepted as being influenced by soil moisture.

It is evident that there is much scope for further systematic work on this subject.

(2) Agronomic factors which govern plant growth: It has been observed by Ramiah, and Mudaliar (1939) that like barley and wheat the protein and mineral content of rice can be increased by proper manuring. They observed that the application of green leaf contributed to the greatest development of aleurone while it was the poorest in the unmanured crop. Variations in the Vitamin B content of wheat of wheat were attributed to locality and climatic conditions under which crops were grown. MacCarisson (1924) found that the grain obtained from cattle manure treatment had antipolyneuitic factor. According to Viswanath and Suryanarayana (1937) Ragi and Cholam grown (permanent manurial experiments, Coimbatore) in manured plots had better nutritive value than those grown in unmanured plots. Among the manures, cattle manure was found to be superior to complete mineral manure.

A large number of investigations have shown that there is an appreciable variation in Vitamin B.1. content due to environmental influences during the growth of the crop, differences in strains or both (kik, Vanlandsingh, 1943). Downe and Cathcart (1941) Conner and Straub (1941) felt that there was correlation between Vitamin B1 and protein content of Wheat, while Nordgreen and Andres (1941) and Johnson and Rice (1942) found no such correlation. Whiteside and

Jackson (1943) and Roffer, et al. (1944) stated the existence of such correlation. Harris (1934), Leon (1939) Pasmore and Sundarajan (1941) could find no evidence of higher nutritive value due to manurial treatments on wheat, barley or rye. Coldberg and Thorp (1942) found no significant effect on Vitamin B content due to manuring. Williams (1943) et al. on the other hand did not find significant differences. Johnson and Rice (1942) and Roffer Alcock, Ceddas (1944) found no relationship between Vitamin B content and the type of soil on which the crop was grown.

However, treatment with potash or nitrogen or a combination of all the five treatments viz., farmyard manure, phosphate, potash, nitrogen and water increased the vitamin B content of Wheat. Recently Sethe, et al.(1952) have shown that the nature of fertilisers added to the soil has got some influence on the thiamin content of rice. Thus there is considerable scope for investigation on this point. We have good materials available in our State to determine the effect of each of the following factors affecting the plant growth and the nutritive value of the produce.

The factors are:-

1) Colour and texture of soil;

2) Effect of manuring with organic manures and inorganic fertilisers;

3) Effect of irrigation - irrigated vs. rainfed.

The various improved strains now on hand in this State will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content..

c) Processing:- It is well know that the unpolished husked paddy is the richest in its nutritive value both on account of the preservation of the aleurone layer, bran and germ undisturbed. It is only these parts of rice which are most nutritive. During polishing as a result of removal of a part of rice grain mentioned above, the original nutritive quality of rice deteriorates resulting in a poorer stuff as mentioned by Aykroyd.

Vitamin B1 content of rice polished to different degrees:

Contd.4.

Number of Polishings.	Micrograms per gm.
Shelled only - Nil	4.0
Once	1.8
Twice	1.0
Thrice (ready for Market)	0.7

(Milling removed more than 75% of vitamins originally present in the shelled rice)(Aykroyd 1940).

The consumers prefer only polished rice to unpolished as they want the white cooked rice for table purpose.

The white colour of the cooked rice depends not only on the degree of polishing but also on the variety grown, the shape and size of the grain etc. It is therefore necessary to determine the optimum degree of polishing necessary to effect least changes in the nutritive value of rice consisting with the desire of the consumers to have white cooked rice. This involves controlled polishing of the most important strains of rice that are commonly used in this State to preserve their nutritive value and at the same time prepare them for table purposes to suit the demands of the rice consumers. For this purpose a laboratory polishing mill has to be used for obtaining a sufficient quantity of the sample to conduct this investigation. The material, both the polished rice and the bran will be analysed for those items mentioned above namely nutritive value, biological value of proteins and vitamin assay.

Very little information is available on the polishing of millets which are also one of the important staple foods of the people of this State.

d) Storage:- Storage of foodstuffs other than fruits and vegetables is a necessity, because all these crops are season bound and when they are produced in plenty they have to be stored during the off season for day to day use. Moreover, the cooking quality of fresh produce, especially raw rice, is popularly known to be inferior to the oldstuff and a second degree of ripening is felt to be necessary by consumers before the material is actually consumed. This ripening process takes place to different degree depending upon the method of storage adopted. The conditions of aeration, temperature, humidity etc. play an important role. The volume expansion during cooking is also influenced by the ripening process. Unfortunately no data are

available on this aspect of the subject and a thorough and systematic investigation on the different kinds of foodstuffs is therefore necessary.

4) Technique (In Brief):

Sample from the various experiments, soil types, strains etc. will be analysed for nutritive value, biological quality of protein and vitamin content. Samples will be gathered from crops as per Statement below for the work.

A. Strain

Name of Crop.	Name of Strain Rainfed	Irrigated.	Remarks.
Cholam	1. Co.1		eriamanjal (Yellow, brown colour)
	2. Co.2		Thalai Virichan (Chalky)
	3. Co.3		-do- (Pearly grain)
	4. Co.4		Sen Cholam (Red)
		Co.7	
		Co.9	
		Co.12	Co.4 and Co.7 can be raised under both rainfed and irrigated conditions. Co.7 however prefers irrigated condition.
Cumbu	Co.1	Co.1	(Rainfed and Irrigated)
	Co.2		
		Co.3	Sometimes grown under rainfed condition in North Arcot District
Ragi	Co.1	Co.1	(Rainfed and Irrigated)
		Co.2	

Paddy	MTU. 1	Akkullu (Coarse)
	MTU. 19	Sannakusuma (fine)
	BAM 3	Biagunda (Medium)
	GEB. 24	Kichili Samba (fine)
	MTU. 15	Dalwa Sannam (Coarse)(Short Duration)
	BCP. 1	Molokolukulu (Nellore Samba- long duration fine)
	Co. 2	Karthigai Samba (Long duration - Medium Size)
	Co. 13	Short Duration (Coarse)
	Co. 25	Sirumani (Medium)
	Co. 19	Chingleput Sirumani (Medium)
	ADT 3	Kuruvai (Coarse)
	ADT. 2	Fine Round
	PTB. 2	Red Rice (Coarse)
	ASD. 1	Red Rice (Coarse)
	SR.26B	Saline Resistant - duration - medium grain long.

(* blast resistant long duration)

(White 13 varieties consisting of coarse, medium and fine, four each and one long red rice)

Fruits:- The following kinds of fruits will be studied.

1. Mangoes: Six important commercial varieties.
2. Bananas: Nendran, Rasthali and Poovan
3. Oranges: Sathugudi and Mandarin Orange
4. Papaya
5. Custard Apple.

Contd.6.

These fruits obtained from distinct soil-climatic zones will be analysed for food values , biological values and vitamin content. The changes in food value during ripening process will also be investigated.

Vegetables; Bhendi, Brinjals, Dolichos, Ribbed Gourd, Bottle Gourd, Pumpkin, Amaranthus and Hibiscus among grees

Details of the strains to be investigated will be furnished when the scheme actually commences.

B. Soil Type.

Name of Crop.	Name of Strain.	Type of Soil.	Remarks.
Cholam	Co.4 and Co.7	Red Black	Red Soils - Anakapalle Palur and Ambasamudram Black Soils - Samalkot, Maruteru, Siruguppa are the venue for paddy growing; for millets Anakapalle, Koilpatti and Palur for red soils Siruguppa, Guntur and Koilpatti for black soil.
Cumbu	Co.1	" "	
Ragi	Co.1	" "	
Paddy	GEB.24 Co. 13.	" "	

Texture

	Clayey	Loamy	Sandy.
Millets.	Siruguppa Koilpatti Guntur	Gudiyattam Palur Vizianagaram	Tirurkuppam Tindivanam
Paddy	Maruteru Aduthurai Samalkot Siruguppa.	Gudiyattam Palur Ambasamudram	Tirurkuppam Tindivanam

C (Manures (Organic Vs. Inorganic)

Millets. O.P.M ◊
N.P.M ◊ No manure, N.P.K. and Cattle manure.

N.B:- The O.P.M. has been receiving these different manurial treatments viz., N, N + K, N + P, N + K + P, K + P, K, P - Cattle manure, no manure cattle manure residual for the past 43 years and at present millet and other crops are grown under rainfed condition, whereas in the N.P.M. the crops are grown under irrigated condition for the past 27 years. Grain of Cholam, cumbu, and ragi grown from.

1) No Manure Plot.
2) N = P + K Plot
3) Cattle Manure Plot

will be analysed for their nutritive value, biological value of proteins and vitamin content. Analysis of paddy grain, GEB.24 strain, obtained from the permanent manurial experiment of the coordinated set of manurial experiments conducted at the several Agricultural Research

Contd.7.

Stations of the State receiving the following treatments will also be done.

Treatments:- 1. Ammonium Sulphate.
2. Compost.
3. Cattle Manure
4. Green Manure.

Each supplying 30 lb. of Nitrogen and 60 lbs. of P.205 as superphospahte, 60 of K20 as pottasium sulphate and 1500 lb. of lime as slaked lime, per acre.

D. PROCESSING:-

Paddy:- 1. Shelled and Unpolished.
2. -do- Polished once
3. -do- " twice
4. -do- " Thrice
5. Washed before cooking
6. Unwashed before cooking.

Two coarse, two fine, two medium and two red rice.

(1) MTU 1)
Co.13) for coarse

BAM 3)
Co. 25) Medium

GEB 24)
BCP 1) Fine

PTB. 2)
ASD. 1) Red

E. Storage:

GEB 24)
Co. 25)
MTU. 1)

1. Gunnies.
2. Straw twist
3. Wicker baskets
4. Silos
5. Underground pits
6. Bins
7. Fresh harvest.

In addition to nutritive value mentioned above the microscopic examination of starch grains, cooking quality etc. will be done.

5. DURATION OF THE SCHEME:-

The Scheme will run for a period of three years in the first instance and would be extended further based on the findings.

6. PRACTICAL UTILITY OF THE INVESTIGATION:

The practical utility of the investigation lies in improving the nutritive quality of the foods produced to provide the bulk of the population adequate amounts of high quality foods to maintain them in better health and efficiency at a time as at the present

When there is an overall shortage of basic foodstuffs resulting in under nourishment.

7. FACILITIES AVAILABLE AND/OR THAT WILL BE MADE AVAILABLE BY STATE GOVERNMENT.

1) Supervision and Staff:- The scheme will be under the Joint Control of the Government Agricultural Chemist and the Director, Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor. Work will be carried out at (i) Government Agricultural Chemist's Laboratories, Coimbatore and (ii) Nutrition Research Laboratories, Coonoor. The Government Agricultural Chemist will be assisted by an Assistant Agricultural Chemist with headquarters at Coimbatore. He will have the following minimum staff for carrying out the various items of investigations envisaged in this Scheme.

Two Assistants
One Lower Division Clerk.
One Laboratory Attender and
Two Peons.

The staff required to assist the Director, Nutrition Research Laboratories, Coonoor in these investigations will consist of:-

Two Assistants
One Laboratory Attender

2) Land Area:- .. .. ..

3) Equipment:- The investigations proposed in this programme will be carried out in the Government Agricultural Chemist's laboratories Coimbatore, and the Nutrition Research Laboratories, Coonoor. Work regarding collection of samples, sampling for analyses and chemical analyses including assay of vitamins that can be carried out titrimetrically or fluoroscopically viz., that of vitamin B.1 and C will be done at Coimbatore. All other estimations, involving animal experiments and bacteriological method of assay for which greater facilities exist at Coonoor will be done there (ie., assay of carotene or Vitamin Niacin, Riboflavin etc). It is proposed to place two Assistants and one Attender to carry out the work at Coonoor and one Assistant Agricultural Chemist two assistants, one Attender, one lower Division Clerk and two peons at Coimbatore. The two laboratories are chosen as requisite facilities are available in the two places for carrying out the analytical as well as bioassay of the experimental materials.

Contd.9.

The Produce obtainable from various experiments under progress in various Agricultural Research Stations of the State will be supplied free for the investigation.

8. RECURRING EXPENDITURE:-

	First Year Rs.	Second Year. Rs.	Third Year Rs.	Total Rs.
(A) Pay of Officer with Details.				
Assistant Agricultural Chemist on Rs.230-30/2-300	2760	2760	3120	8640
(B) Pay of Staff with details:-				
Four Assistants viz., Two for Coonoor and Two for Coimbatore on Rs.100-5-140	4800	5040	5280	15120
One Lower Division Clerk on Rs.45-3-60	540	576	612	1728
Two Laboratory attenders on Rs.24-1-32	576	600	624	1800
Two Peons. Rs.18-½-25	432	444	456	1332
Total.	9108	9420	10092	28620
(C) Dearness Allowance:-				
Assistant Agricultural Chemist at 17½% plus Rs.6/- per mensem	552	552	624	1728
Four Assistants at 17½% plus Rs.8 p.m.	1152	1248	1296	3696
One Lower Division Clerk at Rs.22 pm.	264	264	264	792
Two Laboratory Attenders at Rs.19 "	456	456	456	1368
Two Peons at Rs.18/- per mensem	432	432	432	1296
Total	2856	2952	3072	8880
(D) Other Allowance:-				
House rent allowance at the existing rates:				
Assistant Agricultural Chemist	600	600	600	1800
Four Assistants at Rs.9/- p.m. in the first year and 12/-p.m. later	432	576	576	1584
One Lower Division Clerk at Rs.7.p.m	84	84	84	252
Two Laboratory attenders at Rs.5.p.m	120	120	120	360
Two Peons at Rs.5. per mensem	120	120	120	360
Total.	1356	1500	1500	4356
Hill Allowance:-				
Two Assistants at Rs.36/- per mensem	864	864	864	2592
One Attender at Rs.9/- per mensem	108	108	108	324
Total	972	972	972	2916
(E) Leave Salary	809	836	897	2542
(F) I.C.A.R. Provident Fund Contribution.	506	524	564	1594
(G) Travelling Allowance: For Officer and Establishment	500	500	500	1500
(H) Contingencies: (a) Cultivation Expenses	Nil			
(b) Office and Laboratory expenses:				

Contd.10.

i) Office Contingencies including service stamps, stationeries and Miscellaneous charges	500	500	500	1500
ii) Chemicals and other materials	500	250	250	1000
iii) Freight and samples	100	100	100	300
iv) Miscellaneous unforeseen expenditure L.S.	200	150	150	500
Total	1300	1000	1000	3300

c) Petty construction and repairs to Buildings:-

i) Petty Construction of Buildings. Nil.
2) Repairs to buildings; Nil.

d) Purchase of, repairs to and upkeep of deadstock and livestock

1) Pufchase of deadstock (tools and implements etc. Nil
2) Purchase of Livestock Nil
3) Purchase of furniture Rs.300/
4) Repairs to and upkeep of deadstock and furniture Nil
5) Upkeep of livestock Nil
6) Expenditure on running of machinery Nil.

e) Non-recurring expenses:-

1. Laboratory equipment, glassware, polishing, Mill and other equipment: Rs. 20,000/

9) Receipts Anticipated:- N i l.

10) Share of the Indian Council of Agricultural Research:

The Scheme as proposed will cost a total sum of Rs.74008/. or Rs.74,000/- spread over a period of three years, and will be financed entirely by the Indian Council of Agricultural Research since the Scheme is of All India Importance.

/ True copy /

GAZETTED ASSISTANT.

KPLM.30.7.

Agi BE

Extract from C.B. Register

Serial Number :- 586.

Date of entry in this register :- 11.8.54.

4861

Subject :- Agi - 9 CAR - Scheme for the investigation on nutritive quality of staple food stuffs - proposals.

Old current Number :- 63575 B II/54

No & Date the G.O etc authorising the entry :- LAMS 2443 - 23.7.54

Date when further action is to be taken :- 20.1.55

No & Date of the New Cipher (if any) :-

THIRD ASSISTANT 2 JAN 1955 AGRICULTURE DEPARTMENT

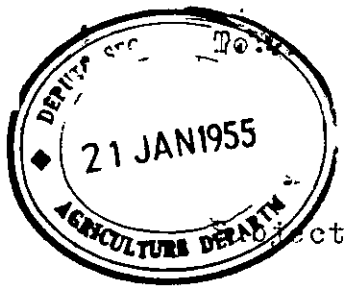
M. Jacob & Pandalai 20/1/55
Superintendent

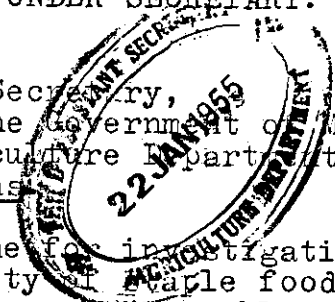
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
JAMNAGAR HOUSE HUTMENTS NEW DELHI.

NO.F.21(110)/54-A.II. Dated the, 19 January, 1955.

From:

Shri P.L. Malhotra, B.A.(Hons).,
UNDER SECRETARY.





To:

The Secretary,
to the Government of Madras;
Agriculture Department,
Madras.

5187

Subject:- Scheme for investigation into the nutritive quality of staple food stuffs including fruits and vegetables-

.....

Sir,

With reference to your letter No. 2443, dated the 23rd July, 1954 on the subject mentioned above, I am directed to say that the scheme was considered by the Scientific Committees and the Advisory Board of the Council at their meetings held in October/November, 1954 but was not recommended for sanction. The Governing Body of the Council at its meeting held in December, 1954 accepted the recommendations of the Advisory Board.

Yours faithfully,

P.L. Malhotra
UNDER SECRETARY

2

Note

The council letter overleaf is submitted for approval. The draft endorsement overleaf is submitted for approval. After issue, this may be added to the file at (T).

29/1/55

29.1.55

28/1/55

(C. No. 63575 BII/54)

Agri. - I.C.A.R. - Scheme for the investigation on nutritive quality of staple food stuffs including fruits and vegetables - Proposals.

G.O.Ms.No.1255 Food and Agri. dated 7-8-53.

From the D.A.Lr.No.D1.804/54 dated 24-6-54.

In this State there are at present seven strains of cholam, three strains of cumbu, two strains of of ragi and fifteen strains of paddy. Very little information is available on the nutritive value of these improved strains. The D.A. has therefore submitted a scheme for the investigation on the Nutritive quality of staple food stuffs including fruits and vegetables.

2. Object of the Scheme: The object of the investigation is to determine the nutritive value of protein and vitamins of fruits and vegetables, as affected by (1) genetical characters; (2) type of soil; (3) manuring: (4) irrigation; (5) processing; and (6) storage, etc. The work done already on the subject in India and abroad and the lacuna necessitating the investigations is given in para.3 at pp.15-19 d.f. It is reported that the various improved strains on hand will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content. The scheme is proposed to be run for a period of three years in the first instance.

3. Supervision and staff:- On the recommendation of the Director, Nutrition Research laboratories, Indian Council of Medical Research, the Scheme will be under the joint control of the Govt. Agrl.Chemist and the Director, Nutrition Research Laboratories, I.C.M.R., Coonoor. Work will be carried out at the Govt. Agrl.Chemist's Laboratories, Coimbatore and

at the Nutrition Research Laboratories, Coonoor. The following staff are proposed to be employed in the scheme:-

i) One Asst.Agrl.Chemist on Rs.230-700 p.m.

ii) Four Assistants on Rs.100-220 p.m. each

iii) One L.D.Clerk on Rs.45-90 p.m.

iv) Two attenders on Rs.24-32 p.m. each.

v) Two peons on Rs.18-25 p.m. each.

The above staff was recommended by the Director of the Nutrition Research Laboratories. As it is proposed to address the I.C.A.R. to meet the entire expenditure on the Scheme, any reduction in staff, if necessary, will be made by them.

4. Financial implications:- The total cost of the Scheme for three years is Rs.74,008 or Rs.74,000 roundly as detailed below:-

		1st year	2nd year	3rd year.
i) Pay of staff	Rs.	9,108	9,420	10,092.
ii) Allowances including T.A.	Rs.	5,684	5,924	6,044
iii) Leave Salary and Provident Fund.	Rs.	1,315	1,360	1,461
iv) Contingencies office and laboratory expenses	Rs.	1,300	1,000	1,000
v) Purchase of furniture.		300	--	--
vi) Non-recurring expenses.		20,000	--	--
Total	Rs.	37,707	17,704	18,597

-- Rs.74008 or Rs. 74000 roundly.

As the Scheme is of All India importance the Dir. has suggested that the I.C.A.R. may be asked to bear the entire cost.

5. The proposal was originally submitted by the D.A. in April 1953. At the instance of finance Dept. it was pointed out to the D.A. that it ~~is~~ was very unlikely that the I.C.A.R. ~~will~~ would agree to bear the entire cost of the scheme. It was further pointed out that the policy of the Govt. was to recommend a scheme to the I.C.A.R. not merely because it

— do —

was eligible for a grant from the council but only if it could be deemed to be of a very urgent nature. The D.A. was therefore requested to adduce more substantial and convincing reasons to warrant the Scheme being taken on hand immediately. The D.A. while reporting that the Scheme was not of a very urgent nature requested that the Scheme might be recommended to the I.C.A.R. for a full grant. Though the proposal was supported in this Dept, Finance, however, suggested that the Scheme might be dropped as it was neither urgent nor essential. The suggestion of Finance was accepted and the Scheme was deferred. The D.A. has now requested that the above Scheme may be reconsidered. The D.A. still considers that the Scheme though not urgent or essential deserves to be considered as early as possible.

6. Inasmuch as the D.A. has suggested that the I.C.A.R. may be asked to bear the entire cost of the Scheme, it is for orders whether the Scheme for the investigation on Nutritive quality of staple foodstuffs including fruits and vegetables now submitted by the D.A. at an estimated cost of Rs.74000 will be accepted and if so, whether the I.C.A.R. will be addressed to meet the entire cost of the scheme.

7. Finance may see before circulation.

30/6.

30.6.54.

The D A has not given adequate justification for taking up this scheme at present. Though Plan considers that it is not essential a request. In any case the reaction of the ICAR to the proposal to request them to meet the entire cost may be ascertained As the scheme does not involve any commitment to this Govt and as DA feels that it deserves to be taken up

2 21

this Deptt may support his proposal

6/7/54

Dy Secy
2/7/54

Agri U.O. 63595 dt 1/54-4
2-7-54.

Fin (E II)

DEPUTY SECRETARY TO GOVT.
3- JUL 1954
E II
FINANCE DEPARTMENT

Notes of Agri. from p 1.
above may be perused.

The DA. has submitted a scheme for three years investigation on the nutritive quality of staple food stuffs including fruits and vegetables at a total Cost of Rs. 74.000/- roundly, to be entirely financed by I.C.A.R. No details of staff and other items of expenditure proposed are at pp. 27-29 of Agri. have supported the proposal.

M. up 29/7

It would appear from para 5 of the note at pp 2-3 ante that the proposal was already considered and agreed at the suggestion of this deptt., the notes of this deptt. at pp 4-6 and 9 ante of the record by Agri. does not the

Para 1

No urgency or necessity with the present proposal. The Secretariat Assistant of Mr. Labs needs explanation in this case. A note may therefore be ordered whether this dept. may suggest that the proposal may be deferred.

Ag
5/7/54

M
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Ag
5.7.54

Ag
5/7/54

Agri

FIN. (E) Agri
6854 5/7/54
5.7.54

Agri

~~Agriculture (B. II) Dept.~~

Note for circulation.

Y 4125/31 6/7

The case relates to the Scheme for the investigation on the Nutritive quality of staple food stuffs including fruits and vegetables.

2. The object of the investigation is to ~~determine the nutritive value of protein and vitamins of fruits and vegetables, as affected by (1)~~ genetical characters; (2) type of soil; (3) manuring (4) irrigation; (5) processing; and (6) storage, etc It is reported that the various improved strains on hand will be grown under different conditions and the grain thus obtained would be analysed for nutritive value including biological value of proteins and vitamin content. In this State ~~there are at present seven strains~~ of cholam, three strains of cumbu, two strains of ragi and ~~fifteen~~ strains of paddy. Very little information is available on the nutritive value of these improved

Confirm

Confirm

Confirm

Confirm

strains. The D.A. has therefore submitted a Scheme for the investigation on the nutritive quality of staple food stuffs including fruits and vegetables.

3. On the recommendation of the Director, Nutrition Research Laboratories, Indian Council of Medical Research, the scheme ~~was~~ is proposed to be under the joint control of the Govt. Agrl. Chemist and the Director, Nutrition Research Laboratories, I.C.M.R., Coonoor. Work will be carried out at the Govt. Agrl. Chemist's Laboratories, Coimbatore and at the Nutrition Research Laboratories, Coonoor. It is proposed to run the scheme for a period of three years at a total estimated cost of Rs.74,000. As the scheme is of all-India importance, the D.A. has suggested that the Indian Council of Agrl. Research may be asked to bear the entire cost.

4. The proposal was originally submitted by the D.A. in April 1953. At the instance of Finance Dept., it was ~~app~~ pointed out to the D.A. that it was very unlikely that the I.C.A.R. would agree to bear the entire cost of the scheme. It was further pointed out that the policy of the Govt. was to recommend a scheme to the I.C.A.R. not merely because it was eligible for a grant from the Council but only if it could be deemed to be of a very urgent nature. The D.A. was therefore requested to adduce more substantial and convincing reasons to warrant the scheme being taken on hand immediately. The D.A. while reporting that the scheme was not of a very urgent nature ~~requested that the scheme might be recommended~~ to the I.C.A.R. for a full grant. Though the proposal was supported in this Dept., Finance however suggested that the scheme might be dropped

fp 15-25 cf.

vide S on p 12 cf

do

A on p 25 cf

M on p 29 cf

p 1 cf (c)

M on p 5 cf (c)

fp 25-26 cf (c)

fp 25-26 cf (c)

p 27 cf (c)

A on p 9 cf (c)

X on p 9 cf (c)

as it was neither urgent nor essential. The suggestion of Finance was accepted and the scheme was deferred. The D.A. has now requested that the above scheme may be reconsidered. The D.A. still considers that the scheme though not urgent or essential deserves to be considered as early as possible.

5. As it is proposed to address the I.C.A.R. to bear the entire cost of the scheme, this Dept. have proposed to accept the proposal of the D.A. As there seems to be no urgency or necessity in the present proposal, Finance Dept. have suggested that the scheme may be deferred.

6. It is submitted that the scheme has already been deferred for over one year. The D.A. considers that the scheme though not urgent or essential, deserves to be considered as early as possible. In view of the all-India importance of the scheme, the D.A. has suggested that the I.C.A.R. may be asked to bear the entire cost. The scheme does not therefore involve any financial commitment to this Govt. For the economic prosperity of the State, it does not seem to be desirable to defer a scheme which is to be run in this State at the expense of the I.C.A.R. The I.C.A.R. may in the first instance be addressed to meet the entire cost of the scheme and if the Council does not agree, the proposal may then be deferred on its merits. In the circumstances, it is for orders:-

(i) whether the scheme for the investigation on nutritive quality of staple food stuffs including fruits and vegetables submitted by the D.A. at an estimated cost of Rs. 74,000 for a period of three years will be accepted; and if so,

(ii) whether the scheme will be forwarded to the I.C.A.R. for approval and sanction of the entire cost of the scheme; or

(iii) whether the suggestion of Finance to defer the scheme will be accepted.

8.7.54. Note for circulation from p 5 above may be perused.

Proposals (i) and (ii) above may be approved -

9/7/54 DS I

The scheme may be forwarded to the ICAR & if it does not agree to meet the entire expenditure, the scheme may be deferred by the Govt even if the ICAR agrees to meet half the expenditure as the scheme is not urgent, however desirable.

N. Murpie
10/7/54

M (A) M. Bhaktavatsalam
10 7 54

M (F+E) [illegible]
12.7.54

AGRICULTURE DEPARTMENT SECRETARY 12 JUL 1954
DEPUTY SEC AGRICULTURE 12 JUL 1954

Orders in circulation at ps 8 above. A draft letter to Re Council is submitted below for approval Finance may perhaps see before issue.

19.7.54.

Agri U.O. 63575 B II/54
21-7-54.

21/7/54

SECRETARY TO GOVERNMENT
72802
21 JUL 1954
E II.
FINANCE DEPARTMENT

Fin (E II)

(Pre. Fin. notes on ps 1 to 4-5 above)

The orders in Circulation on ps 8 above and the draft letter below may be perused and the file returned to Agri.

21.7.54.

22/7/54

Agri

Agri (B II) Dept.

Agri U.O. 72802 E II-1
22-7-54.

The draft below may now issue.

22.7.54.

23/7/54

SECOND ASSISTANT SECRETARY
22 JUL 1954
10/279
AGRICULTURE DEPARTMENT